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STUDIES FROM THE PSYCHOLOGICAL LABORATORY OF
VASSAR COLLEGE.

XLII. VOLUNTARY CONTROL OF LIKES AND DISLIKES; THE EFFECTS OF AN
ATTEMPT VOLUNTARILY TO CHANGE THE AFFECTIVE VALUE
OF COLORS.

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Marcus Aurelius said: "Everything is opinion, and opinion is in our power." It is the second part of this comfortable aphorism that most arouses our distrust. When we test it critically, it seems to resolve itself into the much less satisfactory statement that one of our opinions is in the power of another of our opinions when the two come into conflict; the most encouraging feature of the case is that the victory in such a conflict may through the operation of certain mental processes be conferred on that opinion which seemed at the outset weaker. Such a conflict is especially vital when the opinions are not merely intellectual but emotional; when they are desires. Practical life often confronts us with the advisability of 'changing our desires rather than the order of the world,' to use another Stoic phrase; of liking the things we at first disliked, and regarding with aversion the things that were originally attractive to us. This feat can actually, by a person with normal mental inhibitions, be performed; and one of the most important problems in practical psychology concerns the methods by which it can be performed.

If we reflect on the process as it occurs in experience, we find that, in the first place, the nature of our organism itself has furnished us with a powerful aid in the overcoming of desires. Through the law of affective fatigue or adaptation an emotion tends naturally to pass over into its opposite; violent delights have violent ends. This natural tendency, which operates on good and bad desires alike, may be utilized by the individual who wishes to overcome a desire, and may probably be somewhat accelerated in its action by the other methods which we will proceed to mention.

A second method by which our affective attitude to certain stimuli may be changed is that of fixing attention on different elements in the stimulus. The object desired is usually sufficiently complex to be not all desirable or all undesirable. One who wishes to change his affective attitude towards a given object may turn his attention from its merits to its defects, or *vice versa*, provided of course that the existing emotional reaction is not so strong as to make attention immovable.

Thirdly, we can alter our likes and dislikes by transforming reality through the aid of imagination. That is, the object may be surrounded by a set of ideas unlike its actual setting, and thus become much more or much less desirable. A person who wishes to overcome a passion for another may imagine that other placed in different social conditions, where his or her defects of character or training would be

more apparent, or may ask himself how the individual in question would 'wear' as an unescapable daily companion. This device, in proportion as the imaginary circumstances are improbable, if it succeeds in altering the emotional attitude, does so by virtue of the mechanism which the Freudians have called phantasy; a form of withdrawal from reality.

Finally, it is possible to change the affective attitude by deliberately performing the movements and reactions which belong to the opposite attitude, so far as these reactions are controllable. This is the Freudian mechanism of compensation: whistling to keep up one's courage; declaring in words and acts as strongly as possible that one loves the thing one really hates, or did hate in the beginning.

We may call these four devices by the following terms respectively: (1) affective fatigue; (2) shift of attention; (3) imaginary context; (4) compensation.

The present study undertook to observe the process of deliberately altering the affective reaction to color, presented in the form of small pieces, 3 centimeters square, pasted each in the middle of a card $2\frac{1}{2}$ by 3 inches. One of these cards was laid on a table before the observer, who was asked to express her judgment of the pleasantness of the color by using one of the numbers from 1 to 7, 1 meaning 'very unpleasant,' 7 'very pleasant,' and 4 'indifferent.' When the judgment had been expressed, the experimenter said "Now I want you to see if you can dislike that color," if the judgment had been favorable; or, "I want you to see if you can like that color," if the judgment had been unfavorable. The original judgment and the altered judgment were recorded, and the observer was then asked how she had effected the change. This proceeding was followed with each of eighteen Bradley colors, namely, saturated red, orange, yellow, green, blue, violet and the lightest tint and darkest shade of each of these six. About two months later each observer was asked to judge the pleasantness of the colors again; this was done in order to study the permanence of the changes voluntarily produced.

The total number of observers from whom complete returns were obtained was 53; since each judged eighteen colors, there were in all 954 experiments in each of the two series, the earlier and the deferred series.

In 6.3% of these experiments, the observer was unable to change her judgment of the color.

Of all the	judgments made,	14% could not be changed.
1 (very unpleasant)	" " 5.7%	" " " "
" " 2 (moderately unpleasant)	" " 3.2%	" " " "
" " 3 (slightly unpleasant)	" " 1.9%	" " " "
" " 4 (indifferent)	" " 5.4%	" " " "
" " 5 (slightly pleasant)	" " 6.7%	" " " "
" " 6 (moderately pleasant)	" " 8.8%	" " " "
" " 7 (very pleasant)		

As was to be expected, it was thus found that *extreme judgments are harder to change voluntarily than moderate judgments*. More interesting is the result that *judgments of extreme unpleasantness are decidedly harder to change than judgments of extreme pleasantness*.

Where the effort to change the judgment was successful, we may note certain points with regard to the extent of the change produced. Evidently the judgments 1 and 7 had equal chances to be altered by six points. The results show that in 9% of the 1 judgments the effort to find the colors more agreeable resulted in raising the judgment to 7; while in 32% of the 7 judgments the effort to find the colors less

agreeable altered the judgment to 1. It seems clear that under our conditions *it is much easier voluntarily to lessen the pleasantness of a color by six points than voluntarily to raise its pleasantness by six points.*

A similar relation, though less marked, holds between raising and lowering pleasantness by five points. The judgments 2 and 6 have equal chances to be changed five points. Of the 2 judgments, 36% were by the effort to find the colors more pleasant raised to 7; of the 6 judgments, 48% were by the effort to find the colors less pleasant lowered to 1. *It is noticeably easier voluntarily to lessen the pleasantness of a color by five points than voluntarily to raise its pleasantness by five points.*

In a number of cases where the effort to change the affective value of a color succeeded, the original judgment recurred after the two months' interval; that is, the pleasantness of the color was estimated after the interval just as it had been estimated when first shown, before the effort was made to alter it. Of the 7 judgments, 29% thus recurred; of the 6 judgments, 26.9%; of the 5 judgments, 28.3% of the 4 judgments, 25.7%; of the 3 judgments, 18%; of the 2 judgments, 25%; of the 1 judgments, 26.7%. It thus appears that *pleasant judgments, though more easily changed than unpleasant judgments, have a somewhat greater tendency to recur later.* The average percent. of recurrence for pleasant judgments is 28; for the unpleasant judgments it is 23.2. Part of this difference is caused by the very low tendency of the judgment 3 to recur; a fact for which we have no explanation to suggest.

In a number of other cases the judgment made after the two months' interval coincided not with the original judgment, but with the judgment as altered by the observer's effort. Here it is interesting to observe the relation between the amount and direction of the change effected, and its permanency.

Of the changes where pleasantness was raised				1 point,	24%	were permanent.
"	"	"	"	lowered	32%	"
"	"	"	"	raised	16%	"
"	"	"	"	lowered	8%	"
"	"	"	"	raised	14%	"
"	"	"	"	lowered	12%	"
"	"	"	"	raised	11.8%	"
"	"	"	"	lowered	1.6%	"
"	"	"	"	raised	2.6%	"
"	"	"	"	lowered	2.3%	"

Obviously accidental variation would often be responsible for slight changes from the original judgment, so one would expect that one point changes would have the greatest tendency to recur. Where the amount of change was more than one point, it is noticeable that *changes in the direction of increased pleasantness are more likely to be lasting* (av. per cent of permanence of former, 11.1, of latter, 5.9).

On the whole, these results might be interpreted as suggesting the existence of a *superficial pessimism operating on a deeper-lying optimism.* The pessimism is indicated by the fact that it is easier to pass from strong liking to strong disliking than to go in the reverse direction, and by the fact that it is harder to change at all a judgment of extreme disliking than a judgment of extreme liking. *At the moment, our observers were more ready to abandon their likes*

than their dislikes. But in the long run, the tendency was towards optimism; the observers inclined to recur to their original likes more than to their original dislikes, and to be more lastingly influenced by the favorable changes which they had effected in their reactions to the colors than by the unfavorable changes.

We may next consider the methods which they used to bring about the changes. *By far the most frequently used method was the one which we have called 'imaginary context.'* The color was thought of in an imaginary setting different from the actual one. In 32% of the entire 954 experiments, altering the context produced a change in the affective judgment. For example, the shade of red was judged 5 at first; imagining it in wall paper lowered its pleasantness to 2. Where this method of altering the affective judgments was used, *it produced marked changes.* Of the changes amounting to 6 points, 50% were due to altered context; of those amounting to five points, 46%; of those amounting to four points, 40%; of those amounting to three points, 39%; of those amounting to two points, 30%; of those amounting to one point 24%. It was a little more effective in raising than in lowering the affective values, but the difference was not marked (average, 40% of raising, 36% of lowering).

A particular form of altered context, applicable only to color sensations, is *the imagining the color in combination with some other color.* In 17.7% of the 954 experiments, the affective value of the colors was changed by this method. It was less effective in producing six point changes than other forms of altered context: 21% of the six point changes were due to this cause, 29% of the five point changes; 20% of the four point changes, 22% of the three point changes, 20% of the two point changes, and 5.9% of the one point changes. It was somewhat more effective in lowering the affective value of the colors than in raising it (average, 20.6 of raising, 26.9% of lowering).

Still another form of altered context consists in imagining a greater or less amount of the color. In 4.2% of the total number of experiments the change of affective value was due to imagining the color in greater quantity; in only one of these 41 cases was the effect thus produced that of raising affective value. *Imagining the quantity of a color to be increased nearly always lowers its pleasantness.* This influence is most effective in producing slight changes of affective value; it caused no six point changes, 4.8% of the five point changes, 12.8% of the four point changes, 9.6% of the three point changes, 10% of the two point changes, 18.7% of the one point changes. In only two percent of the total number of experiments was the affective value of a color altered by imagining less of it; obviously because of the small size of the bits of color shown. The effect of lessening the amount of the color in imagination was only in one case an increase of the affective value, the change then amounting to one point. The greatest effectiveness of this device was in raising the pleasantness two points, 10% of the cases of such raising being due to its influence.

The *effect of shift of attention*, the voluntary direction of attention to some disagreeable aspect of the color, was shown almost entirely through a *direction of attention to some agreeable or disagreeable association* with the color. Although this involves the use of elements not actually presented in the color itself, it cannot be said to constitute

a transformation of reality in the sense that altered context does. It is a recollection of actual experience. Recall of associations with the color was the controlling influence in 14.1% of all the experiments, and had its maximum effectiveness in the case of large changes in affective value, and it was *markedly more influential in raising than in lowering pleasantness*. Of the six point changes towards pleasantness, 33% were due to associations; of the six point changes towards unpleasantness, 33%; of the five point changes toward pleasantness, 15.8%; of the five point changes toward unpleasantness, 7%; of the four point changes toward pleasantness, 31%; of the four point changes toward unpleasantness, 11.2%; of the three point changes toward pleasantness, 25%; of the three point changes toward unpleasantness, 18%; of the two point changes toward pleasantness, 25%; of the two point changes toward unpleasantness, 10%; of the one point changes toward pleasantness, 17%; of the one point changes toward unpleasantness, 12.5%. The average percentage for increasing pleasantness was thus 24.4; for decreasing pleasantness, 15.3. This fact, that *it is easier to recall pleasant than unpleasant associations with colors*, is in accord with a point established previously¹ in our laboratory, namely, that when the affective value of a color changes spontaneously during fixation for one minute, increase of its pleasantness is more likely to be due to association than is decrease of its pleasantness.

The colors, being such simple objects, did not in themselves present enough variety of aspect to allow the shift of attention from agreeable to disagreeable features or the reverse. The nearest approach to such a process was shown in the case of 17.6% of the one point drops in pleasantness, which the observers ascribed to finding colors 'insipid.' It is hard to decide whether these cases do not come under the next head, that of *affective adaptation*.

This influence was exercised in 2.2% of all the experiments. It had *very little power to produce marked changes* in judgments of affective value, and what power it had in connection with such changes was to *lower pleasantness*. In 2.3% of the six point drops in affective value it was the cause at work, and in 1.17% of the five point drops. Its effectiveness was oftener shown *in the case of the slight changes*, where it brought about *both increased and lowered pleasantness*; of the two point drops it was responsible for 5.6%; of the one point rises, for 13.3%; of the one point drops, for 14.7%. Probably the slight influence of affective adaptation in these experiments is due to the mildness of the emotional reactions involved.

Finally, *true compensation*, the deliberate assumption of the opposite affective attitude, was used by only one of our observers, and by her only three times. She raised the value of one color from 1 to 3 'just by trying suggestion,' and lowered that of two from 6 to 5 by 'concentrating on getting them down.' It is easy to conjecture that *this method*, so useful in ordinary life, would naturally play little part in conditions where the affective state is not only mild, but accompanied merely by simple motor expressions. One may assume

¹ "The tendency of associated ideas is to raise the pleasantness of a color." Washburn and Crawford: Fluctuations in the Affective Value of Colors during Fixation for One Minute. This Journal, 22, 1911, 579-582.

hatred in order to counteract love, for example, because hatred may be expressed by a great variety of movements, by torrents of words, by forcible actions, and when these voluntary movements are set in operation, there is a fair chance that the deeper organic movements associated with them may come into play and the emotion really be transformed. But expressing one's like or dislike of a color is so mild and simple a motor process, that its voluntary performance can have no very profound effect.